Title: Improvements relating to parts for construction kits

Field of invention

This invention concerns construction kits by which models of buildings and other structures, especially model sports stadiums can be constructed.

Background

Construction kits are described in French Patent Specification 2405830, GB Patent Specifications 371,038 and 2,108,857, Gebrauchmuster 87 10893.3 and US Patent Specification 5,009,599.

Improved construction kits are described in my copending UK Patent Applications 0302023.7 and 0321043.2. These kits employ blocks having openings in some or all of their faces and may be shaped as rectilinear or solid trapezoidal blocks, and include pegs for joining the blocks together.

It is an object of the present invention to provide improved parts for such construction kits.

Summary of the invention

According to one aspect of the present invention in a kit of parts comprising apertured blocks and pegs for joining them together there is provided a hinge for hingedly joining at least two blocks together comprising a rectangular plastics plate divided into two parts by a strip hinge formed by a linear region of reduced thickness extending across the plate, whereby one part can be pivoted through at least 90° relative to the other by bending about

the line of the strip hinge and wherein each half includes at least one peg protruding therefrom.

Preferably the two pegs extend from the same face of the plate when the two parts of the latter are coplanar.

Each peg is dimensioned so as to be a push fit in any of the openings in the apertured blocks so that where each part has one peg, by pushing one of the pegs into an opening in one block and the other peg into an opening in another block, the two blocks will be joined by the strip hinge section of the two part plate, and can be hinged relative to each other to the extent permitted by the hinge.

Normally the hinging will be such that one block can be hinged from a position in which it lies parallel and substantially in contact with the other block, to a position in which it makes an acute angle to the other block.

If blocks are to be spaced apart the hinge joint can be used for this purpose by hinging the one block relative to the other until the two parts of the plate are back to back and in contact, so that the pegs now protrude in axial alignment in opposite directions on either side of the folded plate. The latter will now space apart the opposed faces of the two blocks fitted to the two pegs.

According to a preferred feature of this first aspect of the invention, plates of different size and having any number of protruding pegs may be provided. Thus in the simplest case the two parts are of similar size and shape and each has one protruding peg.

Typically but not essentially the number of pegs will be proportional to the size of each part.

The invention envisages arrangements in which one part is N times the size of the other and has N times as many pegs.

Where two or more pegs are provided on a part of the hinge, the spacing of the pegs preferably corresponds to the spacing of the openings in the blocks.

A part having two protruding pegs can be fitted to two openings in one block or to one opening in each of two blocks, arranged end to end or side by side.

Typically hinges are constructed so as to have two similar sized plates which extend away from the hinge line by a distance commensurate with the width dimension of one of the construction kit blocks and which extend parallel to the line of the hinge by a fraction or whole number multiple (including 1) of the length of the blocks and have a number of protruding pegs commensurate with the block length dimensions they relate to.

Thus in the case of a hinge having 16 pegs protruding from each part, each of the 16bpegs being equally spaced apart in a straight line parallel to the hinge line, four 4-hole blocks arranged end to end can be fitted to each part of the hinge.

Individual pegs may be employed to join these blocks together end to end if desired, and/or to join other blocks to the blocks attached to the hinge.

According to another aspect of the present invention where blocks are to be spaced apart in the same way as bricks are spaced by mortar joints, each of the individual pegs may be formed with a flange typically midway along its length, the thickness of the flange determining the spacing between opposed faces of two blocks joined by inserting one end of the peg into an opening in one block and the other end of the peg into an opening in the other block.

The flange may be any shape such as circular or square or rectangular, and if mortar joints are to be replicated rectangular or square shaped flanges are preferred, the size of each rectangle or square corresponding to one of the faces of a block.

The flanges may be separately manufactured from the pegs and be push fitted or otherwise joined to the pegs.

In a preferred arrangement each flange may be apertured and the pegs are formed with a surface indentation or groove midway (or thereabouts) along their length, the size of the aperture being such, and the material from which the flange and/or peg is formed, or the design of the peg being such, that the latter can be forced through the aperture in the flange until the indentation or groove is reached at which point the flange will snap into the indented or grooved region of the peg and will tend to remain at that position.

The aperture in the flange may correspond in shape to the cross sectional shape of the peg or may be in the form of a slot so that relative movement is possible between the peg and the flange. This may be of advantage in the case of rectangular flanges since it will allow the peg to be inserted into any one of a number of openings in a rectangular block face and for the rectangular flange to be positioned as desired relative to the block.

The flange can serve another purpose and according to another aspect of the invention each peg is formed with a radial protrusion which may be a flange around some or all of the perimeter of the peg cross section, for the purpose of limiting the depth to which the peg can be inserted into an opening in a block.

This feature is of advantage when the openings in the blocks extend from one face to the other, since it is important that approximately one half the length of each peg is available to protrude into each of two abutting blocks.

The protrusion will of course space apart the blocks and if that is not required according to another aspect of the present invention the face of each block may be recessed around the entrance to each opening in the block, to accommodate at least one half the thickness of any peg protrusion. In this way cavities are formed between abutting faces of two blocks which will accommodate the protrusions and allow the block faces to touch.

According to a further aspect of the invention each individual peg is cylindrical and the cylindrical wall is cutaway along he length of the peg to form a small gap at one point around the circumference of the peg, which extends from one end of the peg to the other.

By making the peg from resiliently deformable material and constructing it so that the outside diameter of the cylindrical form of the peg is oversize relative to the openings in the blocks the act of pushing the peg into an opening in a block will cause the gap in the cylindrical wall to close up and reduce the overall dimensions of the peg cross section, so that it can slide into the block. The resilience of the peg material will tend to hold the peg firmly in place in the opening, since all the time it is in the block, the cylindrical cross section has been reduced and the peg will be trying to recover its uncompressed size.

The pegs may be formed for example from resilient plastics material or from springy sheet steel.

The ends of the pegs may be chamfered to facilitate their insertion into the blocks.

According to another aspect of the present invention a hinge assembly of two apertured blocks of a construction kit as aforesaid may be formed if one end of one of two blocks is rebated on opposite side faces to form a reduced width end and one end of the other block is cutaway to form a bifurcated end so as to present two parallel spaced apart flanges between which the rebated reduced width end of the other block can slide, and wherein the rebated end includes a through bore and the two flanges of the co-operating end of the other block are formed with axially aligned openings which when the two blocks are fitted together can be aligned with the through bore, the diameter of the holes in at least one of the flanges being such that a peg as aforesaid can be pushed fitted therethrough and be gripped by the or each flange so as not to fall out, and the diameter of the through bore in the rebated end section is selected so that the other block is either free to rotate about the peg, or grips the peg so that if one block is rotated relative to the other about the peg axis, the two blocks will remain in the relative angular position into which they have been moved.

The peg may be just long enough to accommodate the width of the bifurcated block end so as not to protrude or can be longer so that it can be push fitted into an opening in another adjoining block or other blocks.

The adjoining block or blocks may be conventional blocks, or may be pairs of hinged blocks, similar to the first.

According to another aspect of the present invention a kit of parts for a construction kit such as described and claimed in my co-pending UK Applications 0302023.7 and 0321043.2 may include blocks whose cross section is a right angled triangle and one of the two faces defining the right angle of the cross section is dimensioned so as to correspond to the end face of a rectilinear block, and at least the two faces defining the right angle are provided with openings into which pegs can be push fitted for joining a solid triangular cross section block to another block.

Preferably the length of such a triangular block measured perpendicular to the triangular cross section is equal to the width of one of the rectilinear blocks making up the kit of parts, or is equal to a whole number multiple of that width, or is equal to length dimension of a rectilinear block if that differs from a whole number multiple of the width of the block.

Where the triangular block length is N times the width of a rectilinear block, the faces subtending the right angle are preferably formed with N equally spaced apart openings the spacing of which is commensurate with that of the spacing of openings in the faces of the rectilinear blocks.

By pegging one triangular block to the end of a rectilinear block, the shape of the combination becomes a solid trapezium.

The inclination of the sloping end face of the solid trapezoidal shape so formed is determined by the angles of the two remaining corners of the solid triangular section block, and can be 45° or 30° or 60°, or any other acute angle, relative to the length dimension of the rectilinear block.

As has been described in my co-pending UK Applications 0302023.7 and 0321043.2 solid trapezoidal blocks (whether made up of two blocks as herein proposed or of unitary construction) allow solid terraced corner structures to be constructed such as are required if a model stadium is to be constructed from blocks.

It has also been proposed to fit stepped cladding panels over the terraced structures made of blocks such as aforesaid, to resemble seating, and for some of the cladding panels to taper from top to bottom to define generally triangular pieces which can be fitted side by side over the differently angled faces of the terraced blocks defining a terraced stadium corner as well as parallel sided pieces of stepped cladding for similarly fitting over the straight terraces defining the sides and ends of a model stadium.

According to another aspect of the present invention it is proposed that a model stadium may be constructed using blocks joined by pegs to each other and to a flat base-plate, in which the sides, ends and corners of the model stadium are not constructed as solid terraced structures but as upright columns of blocks pegged to each other and to the base-plate and spaced apart and optionally joined by horizontally positioned blocks likewise joined by pegs to blocks forming the columns, to form a skeleton structure, in combination with panels of stepped cladding resembling the terraces surrounding the central area of the stadium, where the cladding includes a plurality of spaced apart pegs protruding from its rear face by which the cladding can be secured to the blocks making up the columns by push fitting the protruding pegs into openings in the blocks, the cladding serving the dual purpose of giving structural support to the columns of blocks, and covering the skeleton structure so that the sides, corners and ends of the model appear as solid continuous terraces.

Preferably the columns are themselves stepped like a staircase with the step size equating to the step size of the cladding.

The pegs joining the stepped blocks may extend horizontally and vertically between blocks.

Preferably the pegs are cylindrical and have a central bore as herein described.

Preferably the pegs protruding from the rear and undersides of the cladding panels do so along the rear of the lowermost riser and the underside of the uppermost tread defined by each cladding panel.

Preferably the treads of the cladding are formed with lines of spaced apart openings having the same spacing (pitch) as the openings in the blocks making up the skeleton staircase columns.

Preferably the holes in the cladding treads are all of the same diameter which is commensurate with the diameter of the central bores of the cylindrical pegs.

Where cylindrical pegs have to be fitted into the openings in the lines of blocks which will underlie the treads of the stepped cladding, the central openings in the pegs will align with the holes in the treads of the cladding. Seats or other items to be fitted to the terraces may be provided with pins having a cross section which is a push fit onto the holes in the cladding. The pins will also be a push fit in the central bores of any pegs in the blocks below the treads.

In this way seats and other items can be secured in place by pushing their pins down through the holes in the cladding and where pegs are located in blocks below these holes, into the centres of the pegs therebelow.

The overall shape of each panel of stepped cladding may be rectangular, square, triangular or trapezoidal, and can be dimensioned so as to fit from top to bottom of a given skeleton

staircase block structure height or over only part way from top to bottom of the skeleton staircase structures.

Each panel of cladding may be coloured and different cladding panels may be coloured differently from others so that coloured patterns can be created as the panels are fitted to the skeleton staircase structure.

Whether the cladding is all the same colour or differently coloured, the seats may be differently coloured so that differently coloured patterns can be formed by selecting appropriately coloured seats for different positions around the model structure.

Where individual seats are to be fitted around corner regions of the terraces of stepped cladding the seats may be shaped so as to be narrower at their front edges than their backs.

As described in my co-pending Applications 0302023.7 and 0321043.2 the seats may be individual items, each separately securable in a hole in a cladding panel.

Alternatively the seats may be formed in groups preferably in lines of N seats in which the seats are joined together laterally. In this way the number of pins required to secure the seats in position can be reduced since each group only requires two or three pins along its underside to secure for example 4 or 8 or more joined up seats.

The lines of seats may be straight or may be curved or angled to allow them to be fitted to corner regions of the terraces formed by the stepped cladding.

According to a further aspect of the present invention there is provided a kit of parts for a construction kit comprising apertured blocks and pegs for joining the blocks together, from which, in particular, a model stadium can be constructed with terraces around a central area, wherein the kit of parts is made up of just four different types of block together with panels of stepped cladding which are adapted by protruding pegs to be fitted to a skeleton structure made up of the blocks, wherein the four different types of block comprise four-

element and two-element solid rectilinear blocks, two-element solid regular trapezoidal corner blocks, and infill corner blocks each of which is mostly a solid rectilinear shape which includes a small solid or triangular section at one end and whose overall length is not greater than that of the two-element regular trapezoidal corner block, where an element is considered to be a cube containing one opening centrally of each of its faces and an N-element rectilinear block can be though of as being made up of N elements arranged end to end.

Preferably the infill corner blocks are dimensioned so that two joined end to end with their sloping end faces in contact, will fit between the end faces of spaced apart rectilinear blocks at the upper outer ends of two skeleton staircase columns in each of which the bottom step may be made up of a single two-element solid regular trapezoidal corner block as aforesaid and the columns are positioned so that the inclined end faces of the two lowermost blocks abut, and in which each staircase column contains 10 steps above the bottom step, the first four of which are built using two-element rectilinear blocks and the remaining six of which are built using four-element rectilinear blocks, to make up the staircase.

Preferably the edge of each infill block defining the acute angled corner of the trapezoidal extension is chamfered, so that when two such blocks are fitted with their sloping faces in contact, there is no sharp corner between the two blocks, and when fitted singly between blocks at the upper outer ends of two skeleton staircase columns the outer chamfered face of the infill block is generally co-planar with the outer face of the rectilinear block to which it abuts and has the same rectilinear dimensions as that of the end face of the rectilinear block.

When using such staircase columns of blocks to define a 90° corner of a model stadium it will be found that the upper end of each of the first and last corner-defining staircases can be secured to the end face of the uppermost rectilinear block in the immediately adjoining staircase column defining one end of a side-run or end-run of the stadium terraces by using one infill corner block, and the chamfered corner thereof allows the infill block to fit

correctly, and not protrude outwardly beyond the adjoining block at the top of the adjoining side or end column.

Likewise it will be found that if the lower end of each of the staircase columns of a corner-defining array is constructed using a two-element solid regular trapezoidal shaped corner block as aforesaid, the lower ends can all be joined using pegs between abutting inclined faces.

In a preferred arrangement a 90° corner can be defined by three such staircase columns if the inclined end faces of the three lowermost blocks each subtend a 15° angle to the length dimension of each such block, in which event the first and last of the inclined end faces of these three lowermost blocks subtend a right-angle and can be fitted directly to the end faces of the rectilinear blocks at the bottom of the adjoining staircase beginning a side or end run of terraces.

The uppermost block of each staircase column is preferably supported by a vertical column of blocks below it the lowermost block of which may be pegged to a flat base-board as may also the lowermost block at the bottom of the staircase column, so as to define with the base-board a right angled triangle of which the staircase is the hypotenuse.

A roof may be cantilevered over the terraces by building up the vertical wall above the uppermost blocks defining the staircase columns for example by pegging blocks to the uppermost line of blocks around the stadium and if desired between the columns where the latter are spaced apart, and pegging blocks to the uppermost line of blocks of the built up wall so as to extend horizontally over the terraces. The overhang may be increased by pegging other blocks end to end to the horizontal blocks. In a preferred arrangement other blocks may be pegged to the side faces at the ends of the horizontally extending line of blocks and joined by pegs end to end with other blocks to form a triangle of lines of blocks. Typically a 3,4,5 triangulation is defined with 4 blocks extending end to end horizontally, 3 end to end vertically, and 5 end to end blocks defining the hypotenuse.

Cladding panels, which may be clear or coloured and may be surface embossed to resemble roofing, and which may be generally flat or may be shaped or curved, may be provided with openings which register with holes in the blocks making the triangle so that they can be pegged to the blocks making up the triangle, or may include integral peg-like protrusions for pegging to the hypotenuses and possibly also to the verticals of the triangulations.

The different aspects of the invention will now be described by way of example with reference to the accompanying drawings in which:-

Figs 1-3 are different views of a hinge for joining blocks,

Figs 3A and 3B show other examples of hinges,

Figs 4 and 5 are different views of a preferred peg,

Figs 6A, 6B, 7, 8, 9A and 9B are different views of another arrangement by which two blocks can be hingedly joined,

Figs 10A-10D are different views of a solid trapezoidal block,

Figs 11A-11D are different views of a two-element solid regular trapezoidal block,

Figs 12A-12D illustrate four basic building blocks which can be used to build a model stadium and Figs 12E-12M show how different blocks can be joined together to make a variety of composite shapes,

Fig 13 illustrates a preferred form of corner block such as shown in Figs 10 and 12 in which the corner forming the non-90° acute angle of the trapezoidal shape is chamfered,

Fig 14 illustrates how a skeleton corner of a model stadium can be built up by individual staircases of rectilinear blocks and joined together using corner blocks, all as shown in Fig 13 and Figs 12A-D,

Fig 15 illustrates two generally triangular stepped cladding panels which can be fitted to staircase structures such as shown in Fig 14,

Fig 16 shows how two panels such as are shown in Fig 15 can be fitted so as to overlie and tie together adjoining pairs of staircase columns of Fig 14, and

Fig 17 is a cross section on line AA and shows seats fitted to cladding panels,

Figs 17A and 17B are perspective views of a single seat and a line of four such seats,

Figs 18A and 18B illustrate a modified peg, and

Figs 19A, 19B and 20 illustrate a modified block for use with the modified peg of Fig 18.

A hinge is shown in Figs 1-3 comprising a flat plate 10 divided by a linear region of reduced thickness forming a strip hinge 12 and having pegs 14, 16 which extend perpendicularly from the plate. Each peg is chamfered at 18, 20 to assist its insertion into a hole in a block of the type described in my co-pending Applications 0302023.7 and 0321043.2 and will be described in more detail later.

Two blocks 22, 24 shown in dotted outline in Fig 3 are shown fitted to the hinge, with the two parts of the plate hinged to subtend 90°.

The modified hinges in Figs 3A and Fig 3B show how the two parts of the plate need not be the same shape and size (in Fig 3A), nor fit into only one hole in one block but can be fitted for example into two holes in one block face or the two holes in two end faces of two blocks arranged side by side, as shown by the two-peg parts of the hinge of Fig 3B.

The pegs in Fig 3A are denoted by 26, 28, 30 and 32 and in Fig 3B by 34, 36, 38 and 40.

In each case the peg may be solid and if so may have an axially parallel diametrical cut, or may be formed with a central through bore (shown dotted by way of example at 42, 44 in Fig 3), and may also include an axially parallel cut (gap) such as 46, 48 in the cylindrical wall (see Fig 2), or two such cuts or gaps (not shown) may be made in each peg at opposite ends of a diameter of the cylindrical cross section.

Loose pegs are used to join blocks together, and a preferred form of peg construction is shown in Figs 4 and 5. Here the peg is a cylindrical sleeve 50 having chamfered ends 52, 54 and a single axially parallel cut (gap) 56 in the cylindrical wall.

By forming the peg from resilient material such as certain plastics, or from spring steel, the cylinder can be radially compressed to the extent permitted by the gap, so that if a hole into which it is to be pushed is slightly smaller in diameter than the uncompressed external diameter of the peg, the latter will be compressed as it is pushed into a hole, and will grip more firmly the wall of the hole, when inserted.

Figs 6-9 show another form of hinged block joint. Here specially constructed blocks are required one being similar to Fig 6A and the other to Fig 6B.

In Fig 6A the block 60 includes a parallel sided slot 62 bounded by two parallel spaced apart side cheeks 64, 66 while the opposed end of the block 68 in Fig 6B is cutaway by way of rebates 70, 72 to leave a reduced width tongue 74, the dimensions of the slot 62 and the rebates forming the tongue 74 being such that the latter is a sliding fit between the two side cheeks 64, 66.

Holes 76, 78 in the side cheeks align with a hole 80 in the tongue 74 when the latter is inserted between the two side cheeks of block 60 and a cylindrical peg or pin 82 is fitted through the aligned holes 76, 78, 80 to form a hinge pin.

If the ends of the side cheeks and tongue are semicircular as shown at 84 and 86 in Fig 8 and the rebates extend to the positions shown at 88, 90 in Fig 6B, the block 68 can be rotated through 90° on either side of the in-line position for the two blocks 60 and 68.

Also shown in Figs 6-8 is the base 92 of the slot 62 in the block 60.

If the base of the slot is modified to the contoured shape denoted by one or both of the dotted lines 94, 96 in Fig 9A, and the base of each rebate 70, 72 is modified to the contoured shape of 98 and/or 100 as shown in Fig 9B (instead of the straight edges 88, 90), the two blocks 60, 68 can be rotated beyond one or both of the two 90° positions.

Through bores are shown in the two blocks for receiving pegs such as shown in Fig 5. Thus three bores are shown at 102, 104 and 106 in the cross section of block 60 in Fig 6A and also in Fig 9A, and bores 108, 110, 112 and 114 are shown in the cross section of block 68 in Fig 6B and also in Fig 9B.

A solid trapezoidal corner block 116 is shown in Figs 10A-10D. The block includes three peg receiving bores 118, 120 and 122 best seen in the cross section view of Fig 10D and one inclined end 124 and one square end 126. All other faces are square to each other.

A solid regular trapezoidal corner block 128 is shown in Figs 11A to 11D. This has two equally inclined opposite end faces 130, 132, two peg receiving cross-bores 134, 136, one orthogonal top to bottom bore 138 and two end bores 140, 142.

The two corner blocks 116 and 128 of Figs 10 and 11 are shown again at Figs 12A and 12B. Two basic rectilinear blocks are shown at 144 and 146 in Figs 12C and 12D, the former (144) having 4 openings along two opposed longer faces (one of which is shown at 148) and 3 openings along the other two opposed longer faces, while the latter (146) in Fig 12D is half the length of the block 144 and has two openings along two of its opposed

faces (one being shown at 150 in Fig 12D) and one opening centrally of its other two opposed faces.

The remaining Figs 12E - 12M show different combinations of the blocks 116, 128, 144 and 146.

The junction of two corner blocks 116A, 116B arranged as shown in Fig 12G produces a sharp corner at 152 and as shown in Fig 13 this can be removed by chamfering the corner 154 (see Fig 12A) of each of the two blocks (as denoted by 156 in Fig 13).

More importantly the extent of the chamfer is preferably selected so that the area of the inclined face 124A of the chamfered end of block 116C is the same as the area of the square end 145 of a rectilinear block such as 144 of Fig 12C. In this way all four edges of the inclined end such as 116C will align with all four edges of a square end 145 when the two ends are in abutting relationship.

The advantage of this chamfering is best seen in Fig 14. Here 5 staircase columns of blocks are shown (generally designated 158, 160, 162, 164 and 166) defining a corner of a terraced model stadium. Each of columns 160, 162 and 164 is constructed from a doubled ended corner block 128, a series of four steps made up of half size (2-element) rectilinear blocks 146 and six further steps made up of full size (4-element) rectilinear blocks 144. If the columns are positioned as shown in Fig 14 so that the inclined ends of the three lowermost double ended blocks 128A, 128B, and 128C are in abutting relationship, the gaps between the end faces of the uppermost full size blocks 144 can just be filled by a pair of trapezoidal corner blocks 116A and 116B arranged as shown in Fig 12G.

Pegs are employed to join the ends of the blocks 128 to each other and to the square ends of rectilinear blocks 144A, 144B, only part of each of which is shown in Fig 14, which comprise the bottom blocks of parallel sides staircase columns 158 and 166, each of which is made up of a plurality of full size blocks 144 arranged to produce a staircase having 11 treads, each corresponding to a terrace in the model stadium. Similar staircase columns of

full size (or half size) rectilinear blocks 144 (or 146) can be arranged side by side so as to touch and be joined by pegs to form staircase columns to define the two longer straight sides and the shorter straight ends of the stadium, and the other three corners may be constructed in the same way as the corner shown in Fig 14.

The skeleton structure can be made self supporting for example by upright columns of blocks below the uppermost blocks in each of the staircase columns such as 158, 160 etc. This is best seen at 168 in Fig 17 which is a cross section through the staircase column 166 of Fig 14 also shown in Fig 16. In order to give rigidity to the column 168 a single long length of peg material 170 may be pushed through vertically aligned holes in the blocks 144C, 144D, to 144M and into a hole (not shown) in a base-plate 172 (see Fig 17).

The block at the foot of the staircase which is either a double sided corner block such as 128A, B or C (around the corner) or is a rectilinear block such as 144A or 144B (if along a side or end of the model stadium), can be pegged to the base-plate 172 in a similar way by means of a shorter peg shown dotted by 174 in Fig 17.

Each step after the bottom step in each staircase column is made up of two blocks making up a pair one on top of the other, the lower one of each pair being pegged to the rear face of either the lowermost block or the upper block of the preceding step, and the upper one of each pair being pegged to the upper face of the lower one of the pair and to the front face of the lower one of the pair forming the next step up, until the last step is reached which forms the upper end of a vertical column of blocks such as 168. In consequence some of the vertically aligned holes in the blocks will be occupied by a cylindrical peg of the type shown in Fig 4. Some of these are shown in Fig 17 and one is denoted by reference numeral 176.

As shown in Fig 15 stepped panels such as shown at 178 and 180 are fabricated from moulded plastics and are formed with short pegs such as at 182, 184 in the case of panel 180 and 186, 188 in the case of panel 178.

The pegs such as 182, 184 are used to peg the panel to the top and bottom blocks in a staircase column such as shown in Fig 17 where the pegs can be seen push fitted into openings in the front face of the lowermost block 144B and uppermost block 144C of the staircase column 166 (of Figs 14 and 16).

In Fig 16, panels such as 178 and 180 of Fig 15 are seen fitted over two of the staircase columns of the corner array of Fig 14. Each of the panels includes two mutually angled portions so as to accommodate the angle between two adjoining staircase columns in the corner array of Fig 14. However while each step extends symmetrically about the centre line of panel 178 which in turn defines the angle between the two angled parts of the panel, the line defining the apex of the angle subtended by the two parts of the panel 180 is offset from the mid point of the steps and the length of each step to the left of the line is approximately one half the length on the right of that line.

This is best seen in Fig 16 in which each of the stepped panels 180A and 180B (each similar to 180 in Fig 15) is fitted over parts of each of staircase columns 158, 160 and 164, 166 respectively, while two stepped panels 178A and 178B (each similar to 178 in Fig 15) are fitted over parts of staircase columns 160 and 162 (in the case of 178A) and parts of staircase columns 162 and 164 (in the case of 178B).

For clarity panels 178A and 180B have been shown shaded in Fig 16.

As will be evident from Figs 15 and 16 the horizontal surfaces of each of the steps in the panels is apertured by generally regularly spaced apart holes such as 190 (see Figs 15, 16 and 17). The holes in the panels 178, 180 align with the top and bottom holes in the blocks making up the staircase columns, as will be seen in Fig 17 in which the hole 192 containing the upper part of the vertical peg 176 is shown in axial alignment with the hole 190 in the fifth step of panel 180B.

The sides and ends of the stadium may be formed by a plurality of staircase columns of similar sized rectilinear blocks, arranged similarly to those in the corner staircase columns

so that in cross section they will resemble the cross section view of Fig 17. These side and end defining columns may abut and be joined by laterally extending pegs or pins, or may be spaced apart and joined by the side or end defining stepped cladding panels, which span the gaps and tie one column to the next. Preferably however, at least the top and bottom blocks of the side and end staircase columns are joined by rectilinear blocks as well as by cladding. The side and end cladding panel steps may be apertured in the same way as the corner cladding panels shown in Figs 15, 16 and 17.

Each peg such as 176 is cylindrical and therefore includes a central through bore 177 (see Fig 17.

Miniature seats 194 (see Fig 17A) are provided for fitting to the terraces formed by the stepped cladding panels 178, 180 and side and end stepped cladding panels

Each seat comprises an upright back 196, and horizontal seat portion 198, a pedestal 200 and a pin 202 which protrudes centrally of and below the pedestal. The pin 202 is circular in cross section and has a diameter such that it is a push fit in the holes such as 190 in the cladding panels 178, 180.

The pins 202 will extend into the holes 192 and where these are occupied by cylindrical pegs such as 176, the pin 202 will extend into the through bore 177 of the peg.

If the pins 202 are also a push fit into pegs 176 the fitting of the seats to the cladding panels will, where a peg 176 extends below the hole 190, further clamp the panel to the blocks making up the staircase column.

By comparing Figs 14 and 16 it will be seen that the panels 178, 180 not only cover and clad the skeleton staircase columns but also laterally tie the columns together and form part of the structure of the model stadium.

A modified peg is shown in Figs 18A and 18B. This is substantially the same as shown in Figs 4 and 5 and the same reference numerals are employed to denote parts in common with Figs 4 and 5. However the modified peg includes a radial flange 59 which extends around some of the circumference of the body of the peg 50, approximately midway of the length of the peg. Chamfered ends 52, 54 may also be included as in Figs 4 and 5.

Figs 19A and 19B show how a standard four element block such as 144 in Fig 12C is modified to accommodate the flange 59. Here the block is identified as 144′ and Fig 19A corresponds to the view of the block 144 shown in Fig 12. Around the outer end of each of the cross bores in the block (one of which is denoted as 147 in Fig 19A), is formed a shallow circular rebate, one of which can be seen at 149 in Fig 19A. The rebate 151 at the other end can be seen in Fig 19B, which is a cross section on the line AA of Fig 19A. Similar rebates can be seen in Figs 19A and 19B at each end of the cross bores (such as 147) and around each of the holes in each of the end faces of the block 143, 145 as shown at 153, 155.

Fig 20 shows in cross section two four-element blocks 158, 160 joined by one modified peg 162, which demonstrates how the rebates in the opposed faces 164, 166 of the two blocks each accommodate one half the thickness of the flange 168 of peg 162, so that the two blocks can fit together in abutting relationship. Other modified pegs such as 170, 172 are shown fitted into other holes in the two blocks to allow other blocks (not shown) to be fitted to the assembly of blocks 164, 166.

The modified pegs 162, 170, 172 are the same as the modified peg shown in Figs 18A and 18B and the flange such as 168 in the case of peg 162, prevents the peg from entering a block by more than the distance to the first cross bore (such as 174 in block 160) between holes in the other pair of faces of the block (see also 147 in Fig 19B) so as not to interfere with the insertion of pegs into holes defining the cross bores such as 147 and 174.